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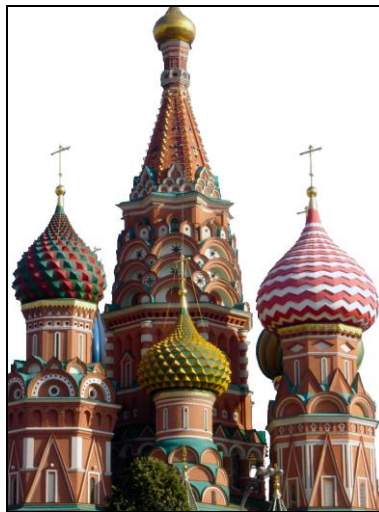
# Integrating Flickr-based Images into Moodle to Increase Visual Appeal and Dynamism of Teaching Spaces

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**Abstract:** Images have long been shown to be an important tool for both learning and helping to develop community; in fact, there is at least one well-known English proverb that attests to this. One reason is that, used well, an image can remove the ambiguity that can be present in verbal and written communication. Research has also shown that imagery has a more direct route into our memory than the written word, which is perceived as an image and converted into meaning by the brain. This paper outlines the development of a tool (a 'Block' in Moodle terms) that allows the presentation of Flickr-stored photos within the Moodle Virtual Learning Environment (VLE) for setting general context of a module, describes the initial uses of the Block and suggests further uses for the future. The paper concludes with further work to be conducted.

## Introduction

The use of images as explanatory devices is long established, even to the point that there is a well-known proverb testifying to the concept – “A picture is worth a thousand words”. For example, figure 1 shows the famous Onion-Domed roof of St. Basil’s Cathedral in Moscow; the difficulty in providing an accurate mental image to every student using only words would be immense, but imagine if this was just one example in a course about religious architecture and required descriptions of Notre Dame in Paris, the Aya Sofya in Istanbul and the Mahabodhi Temple in Bodh Gaya. At the very least much of the subtle detail would be lost by all of the students, at worst every student would make assumptions unique to themselves and possibly produce widely varying imaginary visualisations of the buildings. In situations such as this the use of well-chosen images (diagrams and photographs) can remove ambiguity and, due to the prevalence of digital cameras today, in many cases it is easier to produce or locate a suitable photograph than it is to draw a diagram or write a description (Green, 2006).



**Figure 1:** Onion Domes of St. Basil's Cathedral, Moscow

Research and anecdotal observation has also shown that people generally have a strong visual memory so the use of relevant imagery can be a powerful mnemonic tool and can be rapidly assimilated into our existing knowledge and set of mental constructs (Lord, 1980; Felder, 2002). In fact, it has been suggested that people have two separate mechanisms to process information, visual and verbal, and this ‘dual-coding theory’ suggests that images and word can be used together to reinforce learning (Paivio, 1969). This is related to the concept of the ‘left brain’ and ‘right brain’ split – this postulates that the left half of the brain is logical and sequential (in this context, textual) whereas the right half is holistic and synthesising (in the context of this paper, image-oriented) (Gazzaniga, 1970). This ‘dual-coding’ and brain asymmetry is likely to be the reason that some academics talk of images as ‘texts’ that require a “different method of analysis” from the written word (Green, 2006). This suggests that imagery can be used to provide a ‘resting place for the eyes’ that allows the left-brain to finish processing its information without overloading it.

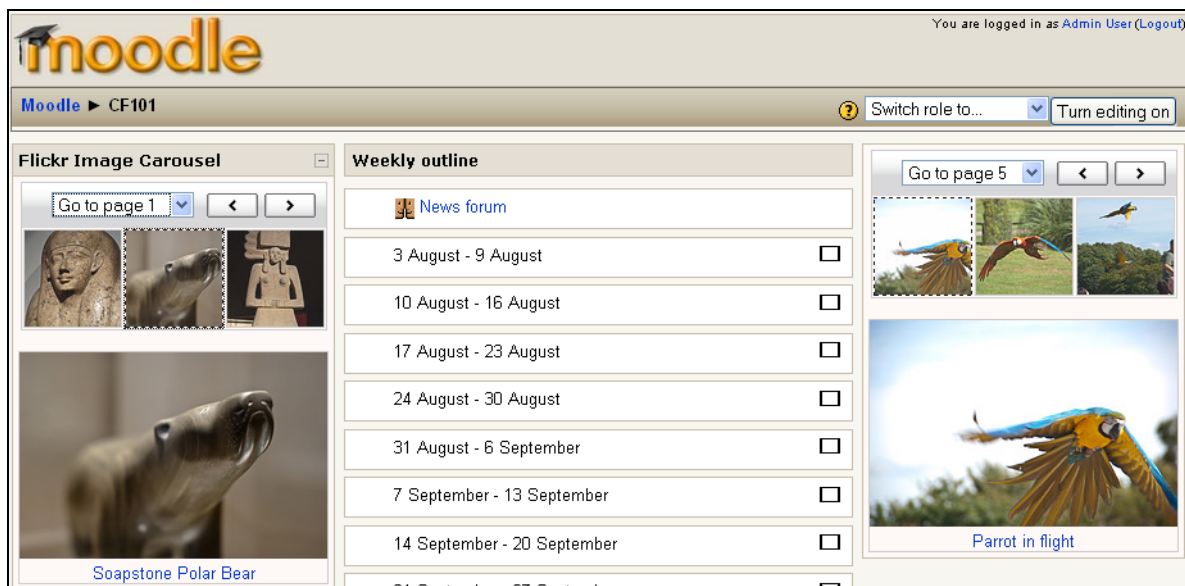
The research suggests that supporting images should be added inline to learning materials in order to reinforce the material in the text (Williams et al., 1995). This is typical in print, and textbooks and newspapers use these ‘Information-bearing images’ as standard practice and electronic resources should be no different; however, images are also effective at setting context and can be used as illustrative materials, rather than being specific examples to be discussed. In this sense it is similar to the sections of indicative photographs that are found in some popular history books, they provide a means to visualise the overall context of the material under discussion without the need discuss the details of the individual images. This is also something that can be brought to the online learning environment and the rest of this paper discusses one tool developed to do this in the popular, open source Virtual Learning Environment, Moodle.

## **Functionality of the Tool**

Moodle uses the concept of plug-ins to provide additional functionality for users. These come in two main types: Modules, which tend to provide new activities for students and resource types, and Blocks, which provide features to supplement the main learning materials and activities. The tool to be discussed has been implemented as a Block, which means that it can be positioned prominently within a module but not in such a way that it disrupts or distracts from the main teaching materials. Figure 2 shows two of the Blocks on a basic (but very narrow) Moodle page, one has a header and both feature scroll buttons and dropdown lists to jump around the image set.

The Block is designed to present a scrollable ‘carousel’ of images from a specified Flickr user. The image selection can be further refined by selecting from a specific ‘set’ (the Flickr term for an album) or by a tag applied to the images. The decision to limit the image retrieval to a single Flickr user was deliberate as it means that there is an extra level of control over the images that will be presented, therefore reducing the possibility of irrelevant or offensive images being displayed within the VLE. Making the images part of a scrollable carousel means that they are less obtrusive when the student is interested in other materials on the page, rather than having a constantly changing part of the page drawing attention from the learning materials. It also means that for the images to scroll the user needs to do something (that is, click a button) which should mean that there is more active engagement with the images and more attention being paid to them.

While the user scrolls through the image thumbnails they can also click on one to open a larger preview underneath the thumbnail strip. This image will also use a caption to link back to the original source image on Flickr where there is the facility to comment on the image or find out more information. The images are downloaded directly from Flickr and are never stored in the VLE, a requirement for using the Flickr service which also limits any copyright issues that could be encountered. When JavaScript is unavailable the Block will display a single static image instead selected by the same criteria as with the strip of thumbnails. The Block shows up to 50 images, based on a random start point, when used to show an entire user’s Photostream or when used with tags. However, when using the ‘set’ option all of the images are displayed in their correct sequence as defined on Flickr. The reason for this difference is that it allows the use of ‘sets’ to create storyboards and show developments over time which would not be possible if they were selected randomly.



**Figure 2:** A pair of Flickr Image Carousel Blocks

The restriction of only getting images from a single user is sensible because it reduces the possibility of accidentally displaying inappropriate or offensive images when using tags; however it does cause some problems with showcasing the work of multiple students. A solution to this problem was to make use of the email upload feature of Flickr. This provides a unique email address that will take images sent to it and add them to the related user's photos and options set in the email can be used to set titles, captions, tags, etc. for the image. The students email the photo they feel is their best work for the week to the Flickr email address and it is added to the showcase account, then at the end of the week a new email address is generated in order to reduce the risk of abuse. This method allows the student to all contribute to the showcase account, but means that they don't require the account password or management privileges.

## Current use of the Block

City University London runs modules on Photojournalism and the principal assessment is through the development of a portfolio of work. When starting this module the students are required to set up an account on Flickr which they will use as a showcase for their work and to critique the work of the other students. The assessment process for the module involves each student submitting their 'best' photograph from the week by email to a shared Flickr account for critiquing by the lecturers. The weekly photos in this shared account are displayed within the module each week so that students can see latest images. This should make the module seem much more dynamic and responsive to the actions taken by the students, and encouraging the students to critique the work of themselves and others in a fairly public way fits in well with the general constructivist methods of this module.

It is also hoped that the dynamic nature of the content in the Block will encourage the students to access the module more frequently than may have been the case with a static display of images. If this is the case then these students may also be more likely to see new teaching materials and possibly take part in formative assessments while in the teaching space. For this purpose the block needs to be prominently positioned but not to detract from the, more important, learning materials in the module; near the top of one of the columns, just below the list of recent updates to the module would be ideal because it would draw the eye over the area listing the new materials in the module therefore providing greater exposure to this important information.

The Block has been used on the communal/programme areas for a number of distance learning courses within the School of Engineering and Mathematical Sciences. These are non-teaching spaces that are used to deliver general and administrative information to students. For distance learning students there is often a poor sense of community and engagement with the university because they are working in relative isolation for much of the time. In response to this feeling of isolation, the Flickr Block was added to these areas and contained images of the teaching and

administrative teams. By placing pictures of the staff involved in the programme into the relevant locations it was hoped that the students, being able to 'put faces to names', would gain some of the benefits of an interpersonal relationship with staff who they may never have actually met in person. The advantage of placing these photos in Flickr rather than as static content within the module is that tagging the images with the module codes that the person is involved with allows the relevant people to be displayed in each module very easily.

## **Planned Future Use**

There are further uses planned for the Block, particularly as a showcase tool for activities and facilities within the University. Using the Block in non-teaching spaces will allow the showcasing of modules to students, particularly in the more 'hands-on' disciplines of Engineering and the Arts, and allow students to get an idea of the types of work and the products of that work that are involved in particular courses. In this case the block can be used to 'market' optional modules to students and raise the profile of particular subjects to the relevant students.

The potential to use the Block as a storyboarding tool will allow students to see the processes involved in real-world tasks and even in projects undertaken by other students. There is an Automotive Engineering module related to 'Formula Student' where students design build and race cars against teams from other universities. In this module the Block could provide a good way to allow students to see the process involved in this development and also help to build excitement about the eventual goal – the race. Once developed in a Flickr photoset the storyboard can be added to any modules where it is deemed to be appropriate, and by being public available to any interested parties through the Flickr website it will also serve as a promotional tool for the University, its courses and its students.

There exists the possibility to allow students to add their own instances of the Block to their profile page, perhaps even automatically. However, there are special considerations for this usage because it raises issues around the appropriateness of the images and how to deal with situations where other people are offended by the content of the Block, especially as that content actually resides in a different continent, may belong to a third party and was not explicitly added into Moodle.

## **Future Work**

With the Block in use in several parts of the University the next major task is to evaluate the effectiveness of the tool both in terms of bolstering learning and in developing community. The evaluation will assess whether the students found any benefit from the tool or whether it was simply a distraction. The evaluation will also specifically assess whether the inclusion of pictures of staff members helped to make distance learning students feel more 'connected' to the institution and whether it helped to 'humanise' the academic and administrative teams. When possible/practical a VARK assessment will also be conducted to see whether there is any correlation between responses and the type of learner; it is expected that the Visual learners would provide the most positive responses and the Reading learners would feel the least benefit from the inclusion of images.

The advantage of using Flickr to store the images is that they are also available to the internet in general. This means that time spent uploading images and organising sequences within sets can also be viewed as an outreach/promotion activity. By making available high-quality images on the internet it can help to raise the profile of the university, the courses for which the images relate and the staff involved. Therefore, once a range of resources are created they will be promoted to other interested parties, preferably with a suitable Creative Commons licence attached to allow reuse. The production of banks of high-quality, educationally-suitable images could be a very positive development from increasing the use of Flickr in teaching at City University London, and would be particularly beneficial to those disciplines where some images are hard to find or are encumbered by restrictive copyright and licences, and also in allowing researchers to develop resources to visually showcase their work both to others within their discipline and the general public.

The Block currently only supports the display of images that have been made publicly available, yet Flickr also allows restrictions to be placed on the visibility of particular images. It may become necessary to include a feature that allows restricted images to be displayed in the Block, such as when the images are 'private' because they are of

a sensitive nature. This is a feasible addition, but it hasn't yet been implemented as it could contribute to the development of more 'walled gardens' where content cannot be shared with the greater community.

The Block currently only works in Moodle 1.x installations. Should the feedback and evaluation of the Block show that there is demand for it, the Block will be updated to work in Moodle 2.0. This could be a particularly good pairing because Moodle 2.0 uses the concept of Repositories for file storage and one of the standard repositories is Flickr. This will make the use of Flickr much more central to the process of adding content to Moodle, and so would help to generate the libraries of images required for this Block.

## Notes

The Block is currently in the process of being released back to the Moodle community as an Open Source development and so can be used by any institution using a compatible version of Moodle 1.x (1.8 onwards).

The Block uses phpFlickr (<http://phpflickr.com>) by Dan Coulter to retrieve the images and the Yahoo User Interface (YUI) 2 Carousel component (<http://developer.yahoo.com/yui/carousel/>) to display them.

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